#3

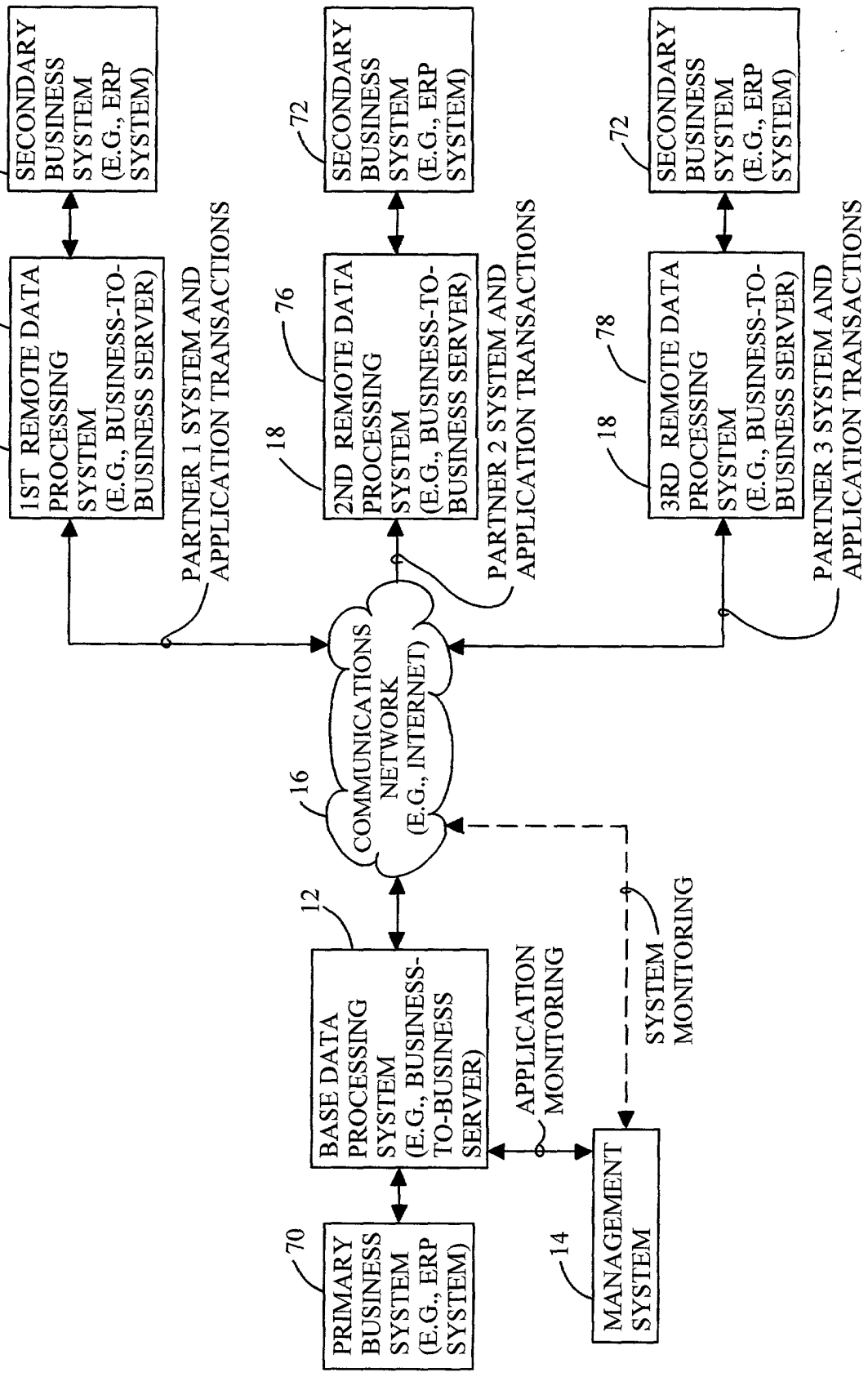
PRIMARY BUSINESS SYSTEM (E.G., ERP SYSTEM)
70
BASE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
12
MANAGEMENT SYSTEM
14
COMMUNICATIONS NETWORK (E.G., INTERNET)
16
APPLICATION MONITORING
SYSTEM MONITORING
1ST REMOTE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
18
74
2ND REMOTE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
18
76
3RD REMOTE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
18
78
SECONDARY BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
SECONDARY BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
SECONDARY BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
PARTNER 1 SYSTEM AND APPLICATION TRANSACTIONS
PARTNER 2 SYSTEM AND APPLICATION TRANSACTIONS
PARTNER 3 SYSTEM AND APPLICATION TRANSACTIONS

FIG. 1

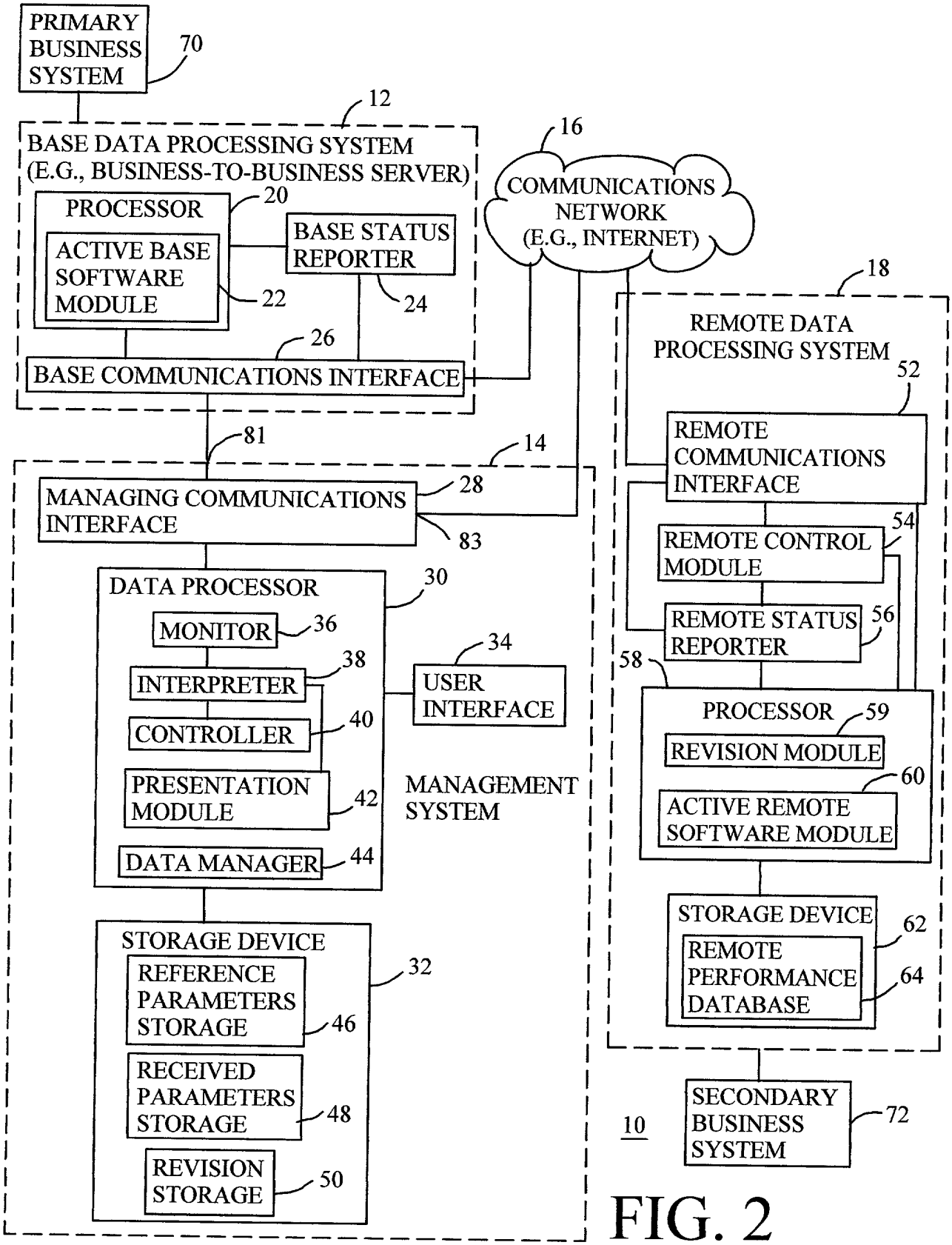
PRIMARY BUSINESS SYSTEM
70
12
BASE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
PROCESSOR
20
ACTIVE BASE SOFTWARE MODULE
22
BASE STATUS REPORTER
24
26
BASE COMMUNICATIONS INTERFACE
16
COMMUNICATIONS NETWORK (E.G., INTERNET)
18
REMOTE DATA PROCESSING SYSTEM
52
REMOTE COMMUNICATIONS INTERFACE
54
REMOTE CONTROL MODULE
REMOTE STATUS REPORTER
56
58
PROCESSOR
59
REVISION MODULE
60
ACTIVE REMOTE SOFTWARE MODULE
STORAGE DEVICE
62
REMOTE PERFORMANCE DATABASE
64
81
14
MANAGING COMMUNICATIONS INTERFACE
28
83
DATA PROCESSOR
30
MONITOR
36
INTERPRETER
38
CONTROLLER
40
PRESENTATION MODULE
42
DATA MANAGER
44
34
USER INTERFACE
MANAGEMENT SYSTEM
STORAGE DEVICE
32
REFERENCE PARAMETERS STORAGE
46
RECEIVED PARAMETERS STORAGE
48
REVISION STORAGE
50
10
SECONDARY BUSINESS SYSTEM
72

FIG. 2

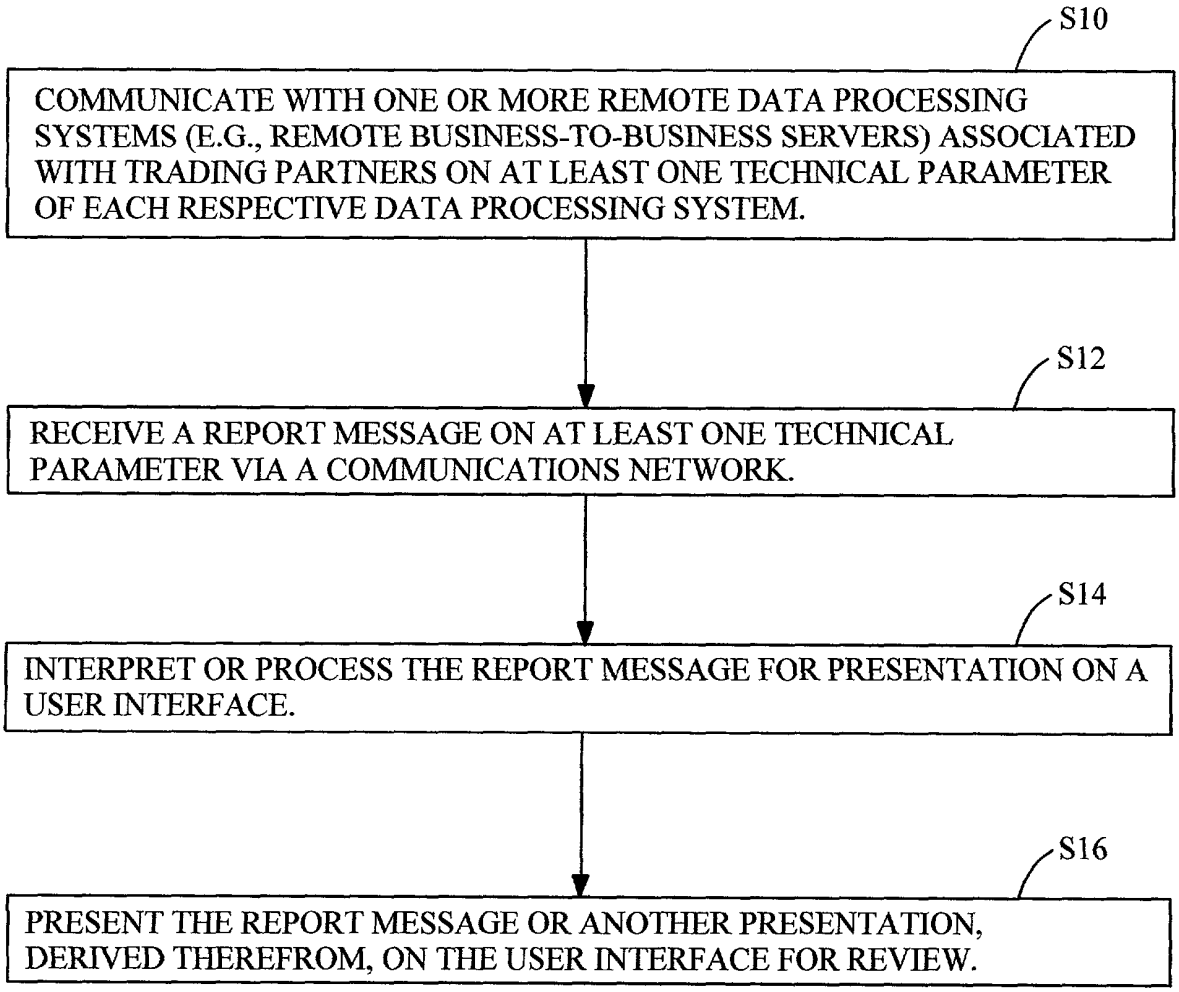
S10
COMMUNICATE WITH ONE OR MORE REMOTE DATA PROCESSING SYSTEMS (E.G., REMOTE BUSINESS-TO-BUSINESS SERVERS) ASSOCIATED WITH TRADING PARTNERS ON AT LEAST ONE TECHNICAL PARAMETER OF EACH RESPECTIVE DATA PROCESSING SYSTEM.
S12
RECEIVE A REPORT MESSAGE ON AT LEAST ONE TECHNICAL PARAMETER VIA A COMMUNICATIONS NETWORK.
S14
INTERPRET OR PROCESS THE REPORT MESSAGE FOR PRESENTATION ON A USER INTERFACE.
S16
PRESENT THE REPORT MESSAGE OR ANOTHER PRESENTATION, DERIVED THEREFROM, ON THE USER INTERFACE FOR REVIEW.

FIG. 3

Patent Application for: REMOTELY MONITORING A DATA PROCESSING SYSTEM VIA A COMMUNICATIONS NETWORK
Inventor(s): Cornelius et al.
Serial No. 09/943,964

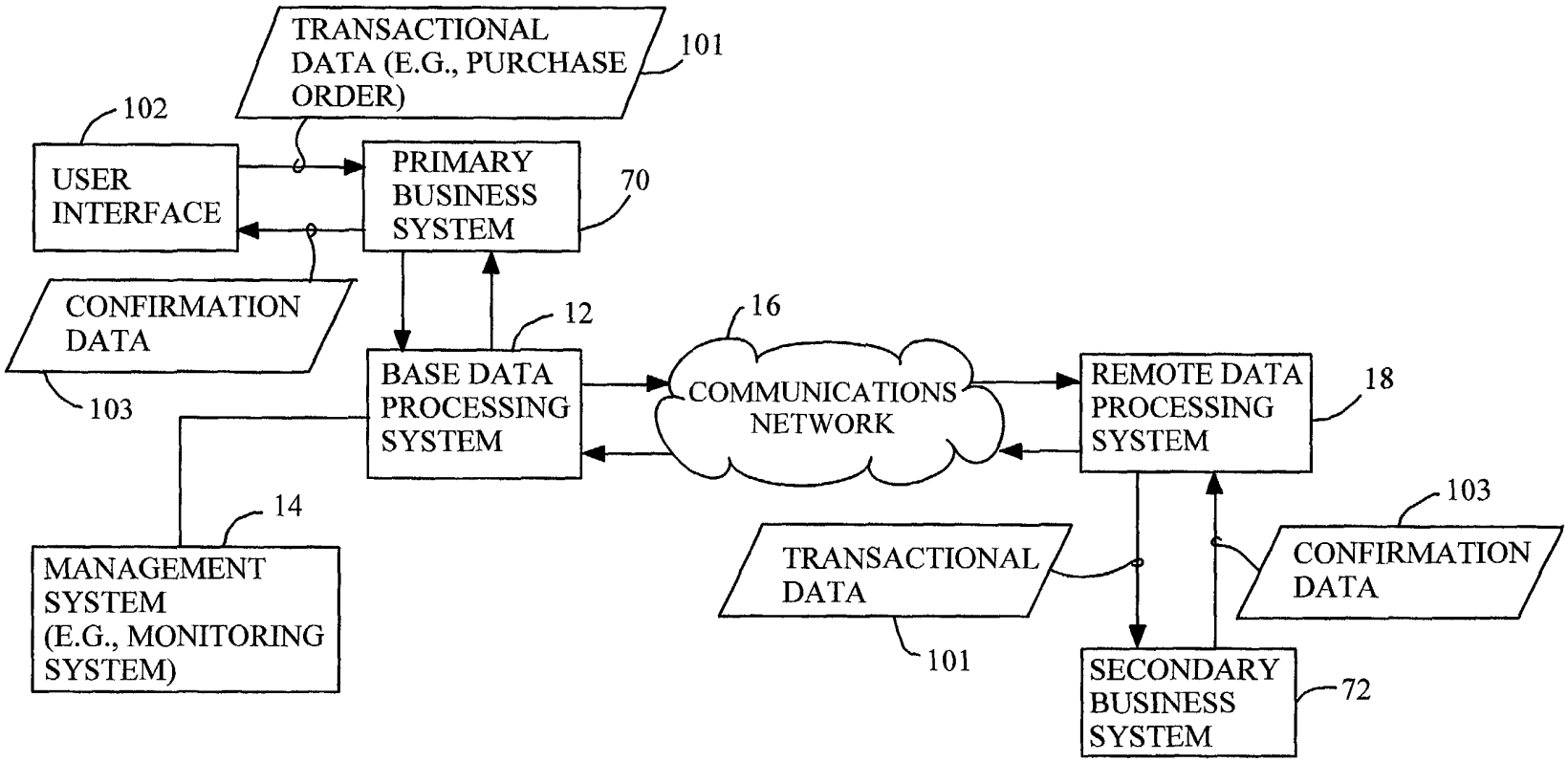

FIG. 4

Patent Application for: REMOTELY MONITORING A DATA PROCESSING SYSTEM VIA A COMMUNICATIONS NETWORK
Inventor(s): Cornelius et al.
Serial No. 09/943,964

	104 TRADING PARTNER IDENTIFIER	105 TRANSACTION IDENTIFIER	106 INCOMING TIME	107 OUTGOING TIME	108 STATUS DATA
109	FIRST TRADING PARTNER	1,000.00	1/31/2001, 10:30:00 AM	1/31/2001, 10:34:00 AM	COMPLETE
110	SECOND TRADING PARTNER	1,001.00	1/31/2001, 11:20:00 AM	1/31/2001, 11:22:00 AM	COMPLETE
111	THIRD TRADING PARTNER	1,002.00	1/31/2001, 1:12:00 PM		NOT RECEIVED
	⋮	⋮	⋮	⋮	⋮
112	NTH TRADING PARTNER	1,003.00	1/31/2001, 10:30:00 PM	1/31/2001, 10:45:00 PM	DATA CORRUPT

FIG. 5

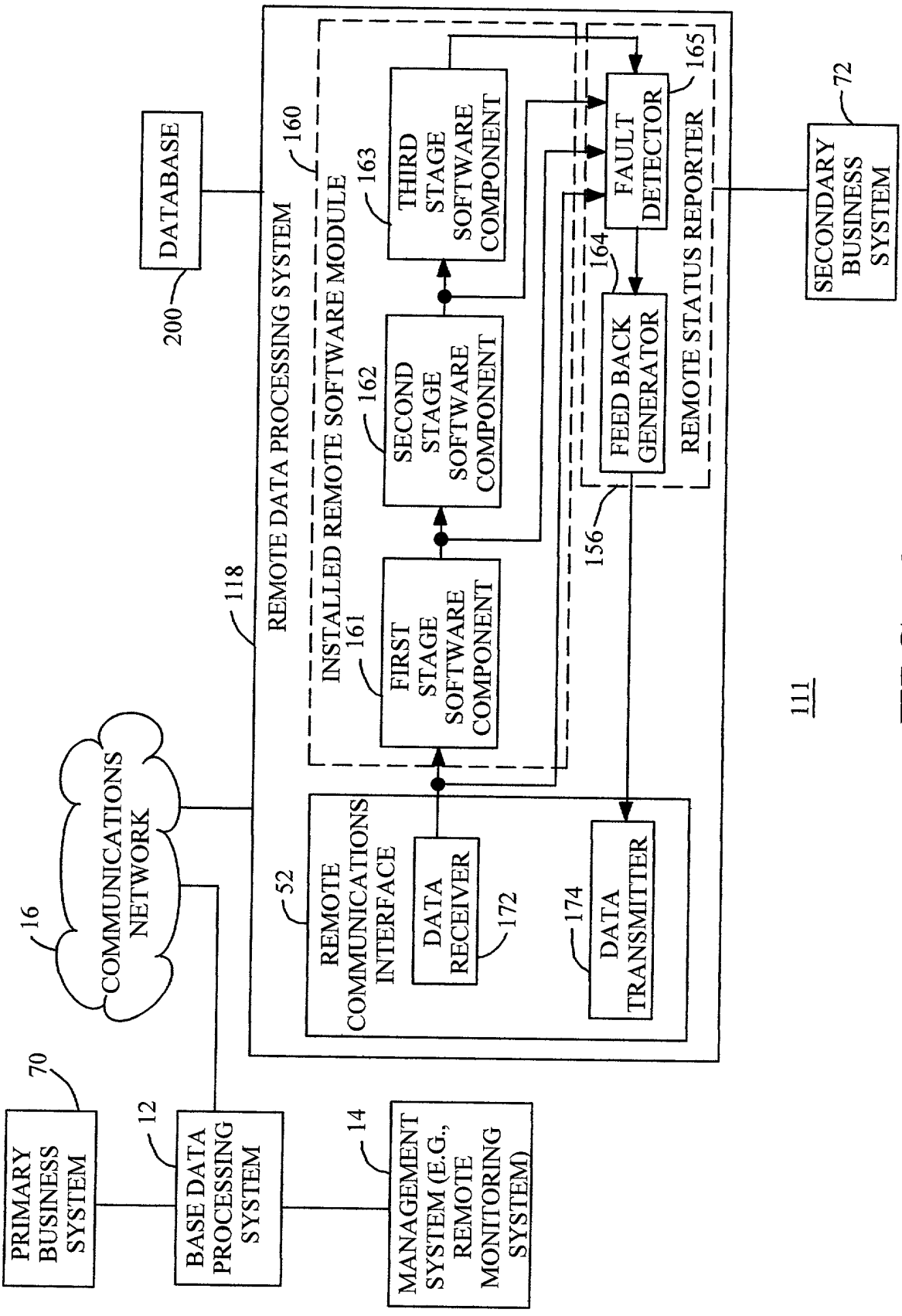
PRIMARY BUSINESS SYSTEM
70
BASE DATA PROCESSING SYSTEM
12
MANAGEMENT SYSTEM (E.G., REMOTE MONITORING SYSTEM)
14
COMMUNICATIONS NETWORK
16
DATABASE
200
REMOTE DATA PROCESSING SYSTEM
118
INSTALLED REMOTE SOFTWARE MODULE
160
FIRST STAGE SOFTWARE COMPONENT
161
SECOND STAGE SOFTWARE COMPONENT
162
THIRD STAGE SOFTWARE COMPONENT
163
FEED BACK GENERATOR
164
FAULT DETECTOR
165
REMOTE STATUS REPORTER
156
REMOTE COMMUNICATIONS INTERFACE
52
DATA RECEIVER
172
DATA TRANSMITTER
174
SECONDARY BUSINESS SYSTEM
72
111

FIG. 6

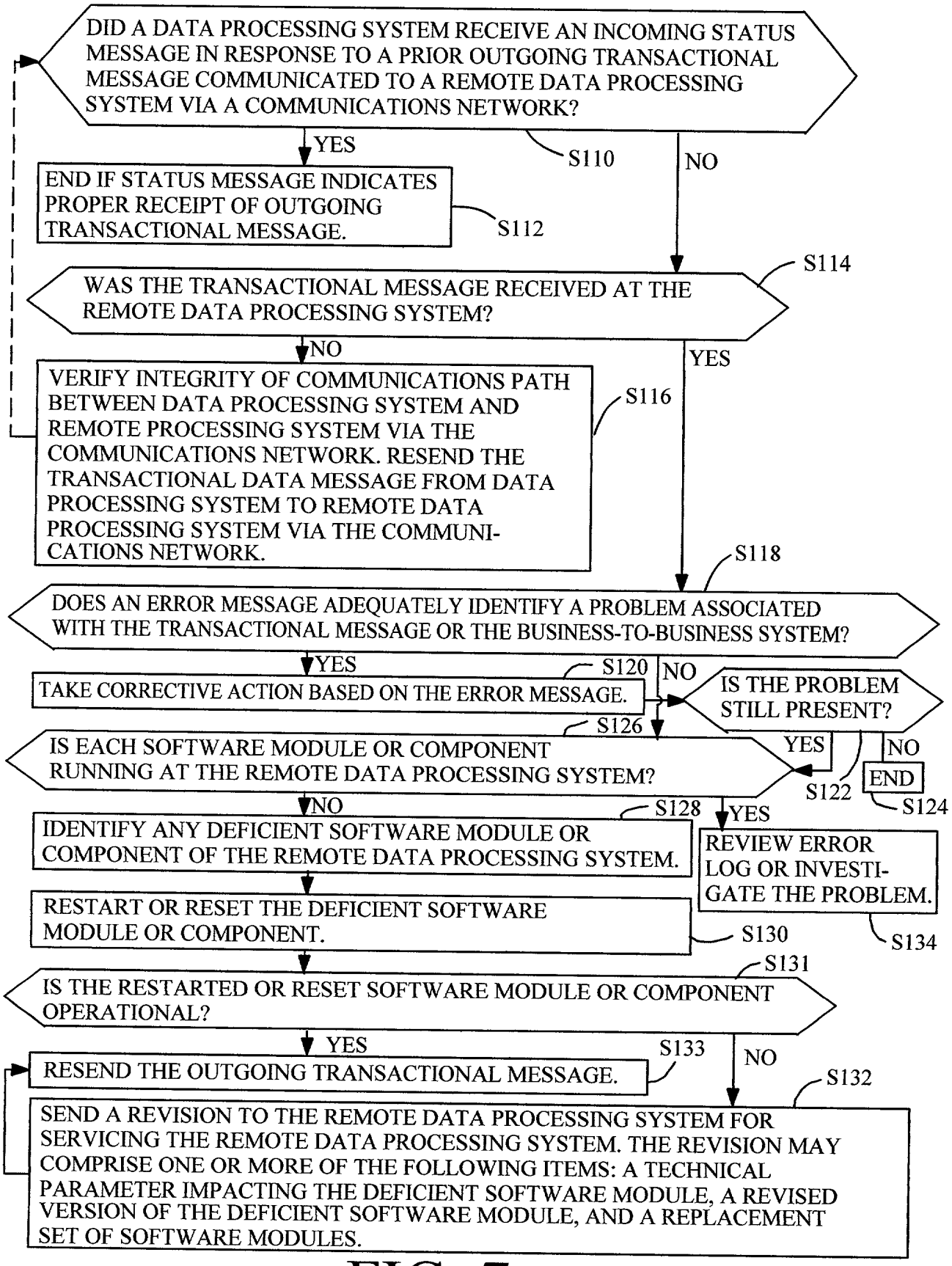
DID A DATA PROCESSING SYSTEM RECEIVE AN INCOMING STATUS MESSAGE IN RESPONSE TO A PRIOR OUTGOING TRANSACTIONAL MESSAGE COMMUNICATED TO A REMOTE DATA PROCESSING SYSTEM VIA A COMMUNICATIONS NETWORK?
S110
YES
NO
END IF STATUS MESSAGE INDICATES PROPER RECEIPT OF OUTGOING TRANSACTIONAL MESSAGE.
S112
WAS THE TRANSACTIONAL MESSAGE RECEIVED AT THE REMOTE DATA PROCESSING SYSTEM?
S114
NO
YES
VERIFY INTEGRITY OF COMMUNICATIONS PATH BETWEEN DATA PROCESSING SYSTEM AND REMOTE PROCESSING SYSTEM VIA THE COMMUNICATIONS NETWORK. RESEND THE TRANSACTIONAL DATA MESSAGE FROM DATA PROCESSING SYSTEM TO REMOTE DATA PROCESSING SYSTEM VIA THE COMMUNI-CATIONS NETWORK.
S116
DOES AN ERROR MESSAGE ADEQUATELY IDENTIFY A PROBLEM ASSOCIATED WITH THE TRANSACTIONAL MESSAGE OR THE BUSINESS-TO-BUSINESS SYSTEM?
S118
YES
NO
TAKE CORRECTIVE ACTION BASED ON THE ERROR MESSAGE.
S120
IS THE PROBLEM STILL PRESENT?
YES
NO
END
S122
S124
IS EACH SOFTWARE MODULE OR COMPONENT RUNNING AT THE REMOTE DATA PROCESSING SYSTEM?
S126
NO
YES
IDENTIFY ANY DEFICIENT SOFTWARE MODULE OR COMPONENT OF THE REMOTE DATA PROCESSING SYSTEM.
S128
REVIEW ERROR LOG OR INVESTI-GATE THE PROBLEM.
S134
RESTART OR RESET THE DEFICIENT SOFTWARE MODULE OR COMPONENT.
S130
IS THE RESTARTED OR RESET SOFTWARE MODULE OR COMPONENT OPERATIONAL?
S131
YES
NO
RESEND THE OUTGOING TRANSACTIONAL MESSAGE.
S133
SEND A REVISION TO THE REMOTE DATA PROCESSING SYSTEM FOR SERVICING THE REMOTE DATA PROCESSING SYSTEM. THE REVISION MAY COMPRISE ONE OR MORE OF THE FOLLOWING ITEMS: A TECHNICAL PARAMETER IMPACTING THE DEFICIENT SOFTWARE MODULE, A REVISED VERSION OF THE DEFICIENT SOFTWARE MODULE, AND A REPLACEMENT SET OF SOFTWARE MODULES.
S132

FIG. 7

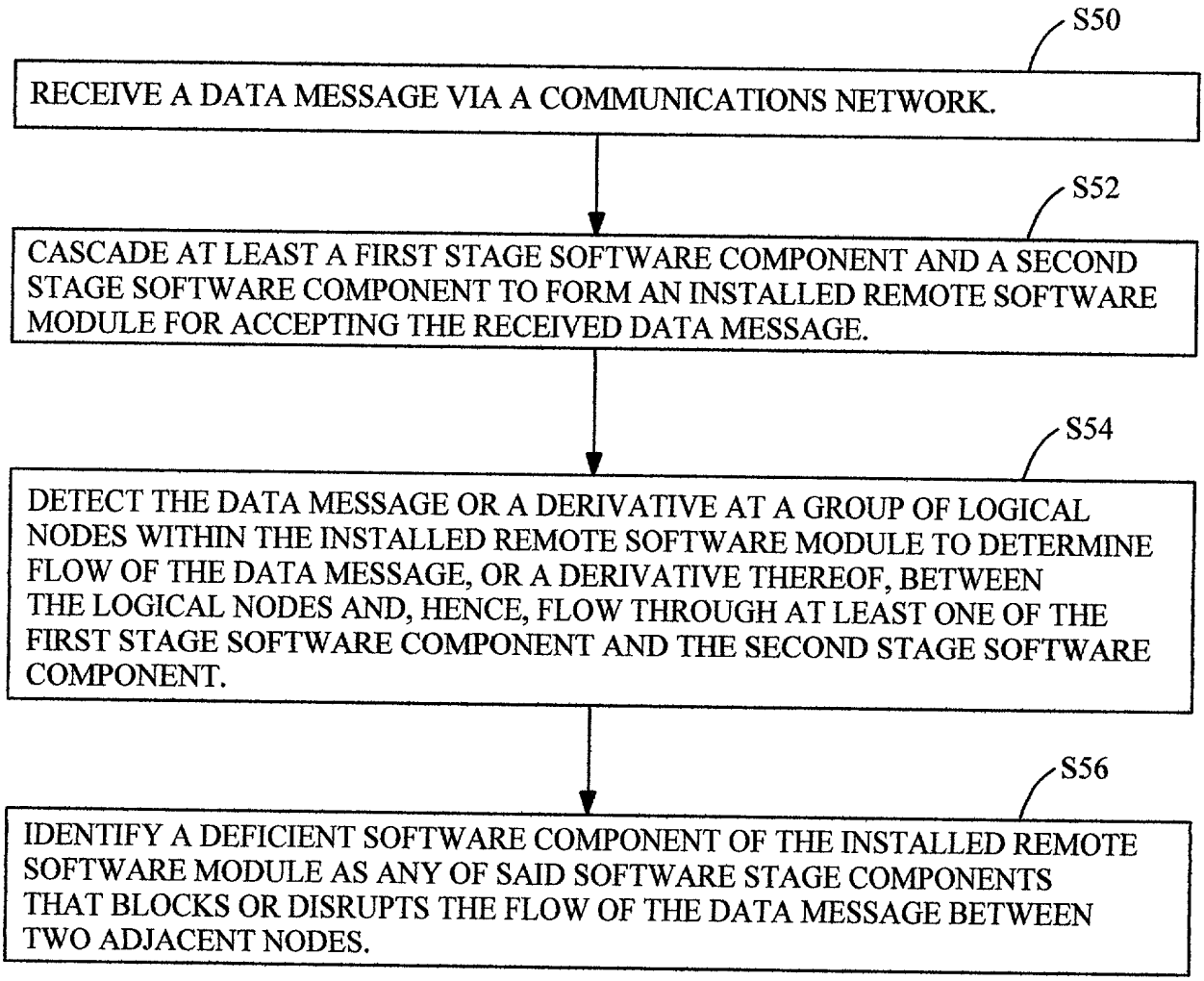
S50
RECEIVE A DATA MESSAGE VIA A COMMUNICATIONS NETWORK.
S52
CASCADE AT LEAST A FIRST STAGE SOFTWARE COMPONENT AND A SECOND STAGE SOFTWARE COMPONENT TO FORM AN INSTALLED REMOTE SOFTWARE MODULE FOR ACCEPTING THE RECEIVED DATA MESSAGE.
S54
DETECT THE DATA MESSAGE OR A DERIVATIVE AT A GROUP OF LOGICAL NODES WITHIN THE INSTALLED REMOTE SOFTWARE MODULE TO DETERMINE FLOW OF THE DATA MESSAGE, OR A DERIVATIVE THEREOF, BETWEEN THE LOGICAL NODES AND, HENCE, FLOW THROUGH AT LEAST ONE OF THE FIRST STAGE SOFTWARE COMPONENT AND THE SECOND STAGE SOFTWARE COMPONENT.
S56
IDENTIFY A DEFICIENT SOFTWARE COMPONENT OF THE INSTALLED REMOTE SOFTWARE MODULE AS ANY OF SAID SOFTWARE STAGE COMPONENTS THAT BLOCKS OR DISRUPTS THE FLOW OF THE DATA MESSAGE BETWEEN TWO ADJACENT NODES.

FIG. 8

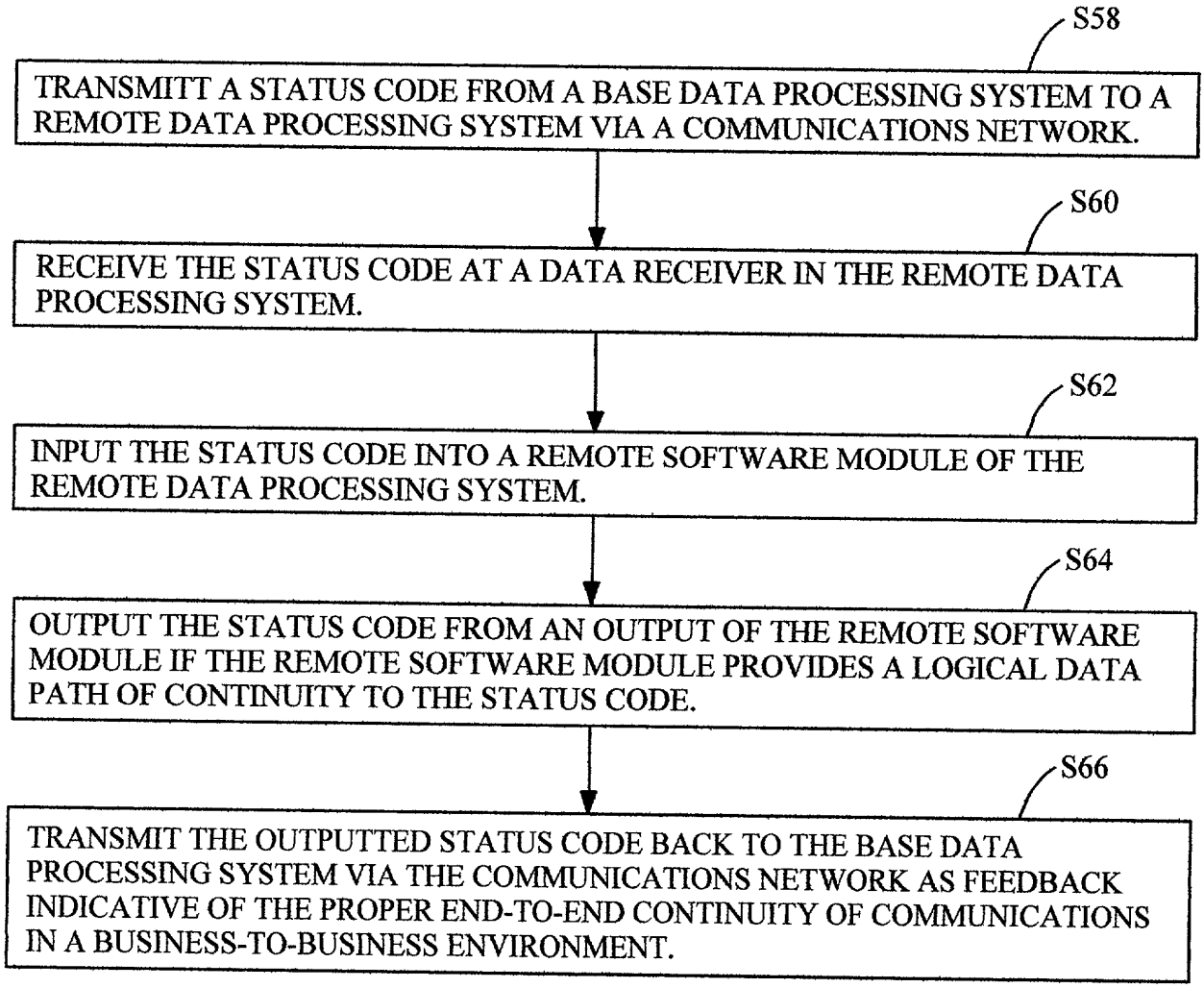
S58
TRANSMITT A STATUS CODE FROM A BASE DATA PROCESSING SYSTEM TO A REMOTE DATA PROCESSING SYSTEM VIA A COMMUNICATIONS NETWORK.
S60
RECEIVE THE STATUS CODE AT A DATA RECEIVER IN THE REMOTE DATA PROCESSING SYSTEM.
S62
INPUT THE STATUS CODE INTO A REMOTE SOFTWARE MODULE OF THE REMOTE DATA PROCESSING SYSTEM.
S64
OUTPUT THE STATUS CODE FROM AN OUTPUT OF THE REMOTE SOFTWARE MODULE IF THE REMOTE SOFTWARE MODULE PROVIDES A LOGICAL DATA PATH OF CONTINUITY TO THE STATUS CODE.
S66
TRANSMIT THE OUTPUTTED STATUS CODE BACK TO THE BASE DATA PROCESSING SYSTEM VIA THE COMMUNICATIONS NETWORK AS FEEDBACK INDICATIVE OF THE PROPER END-TO-END CONTINUITY OF COMMUNICATIONS IN A BUSINESS-TO-BUSINESS ENVIRONMENT.

FIG. 9

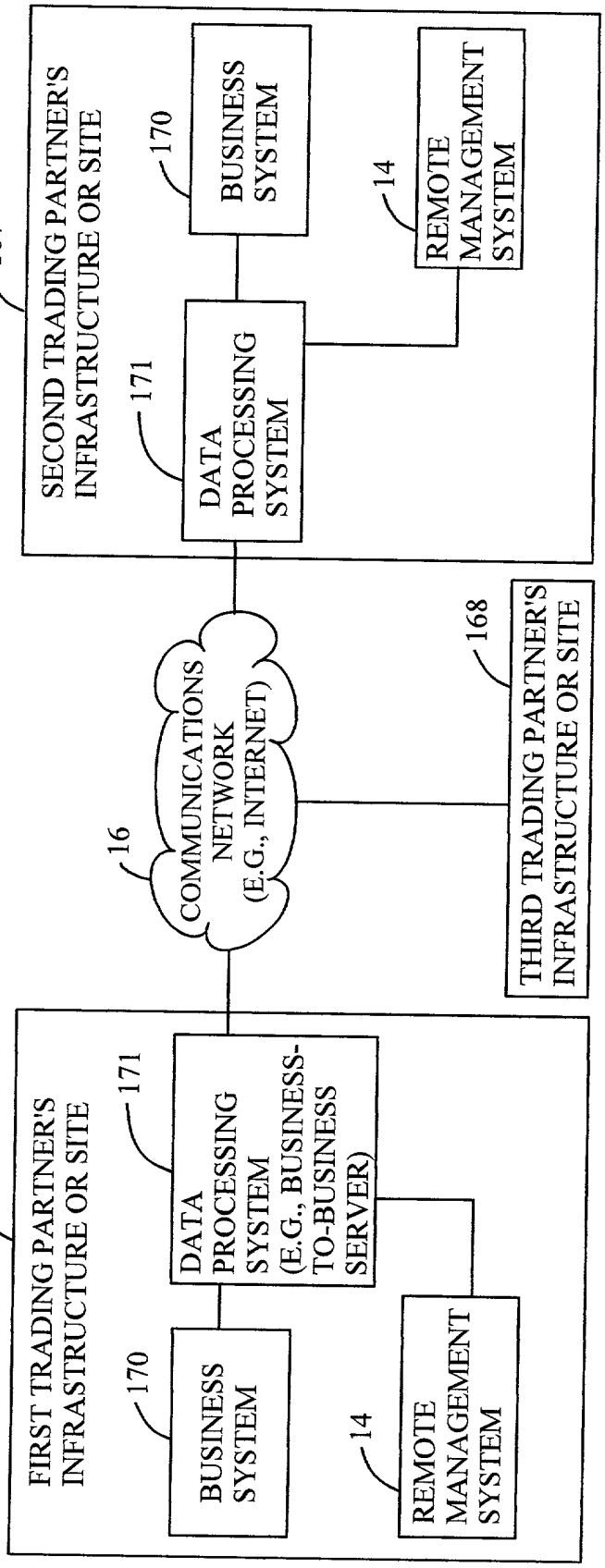
FIRST TRADING PARTNER'S INFRASTRUCTURE OR SITE
166
BUSINESS SYSTEM
170
DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
171
REMOTE MANAGEMENT SYSTEM
14
COMMUNICATIONS NETWORK (E.G., INTERNET)
16
SECOND TRADING PARTNER'S INFRASTRUCTURE OR SITE
167
BUSINESS SYSTEM
170
DATA PROCESSING SYSTEM
171
REMOTE MANAGEMENT SYSTEM
14
THIRD TRADING PARTNER'S INFRASTRUCTURE OR SITE
168

FIG. 10

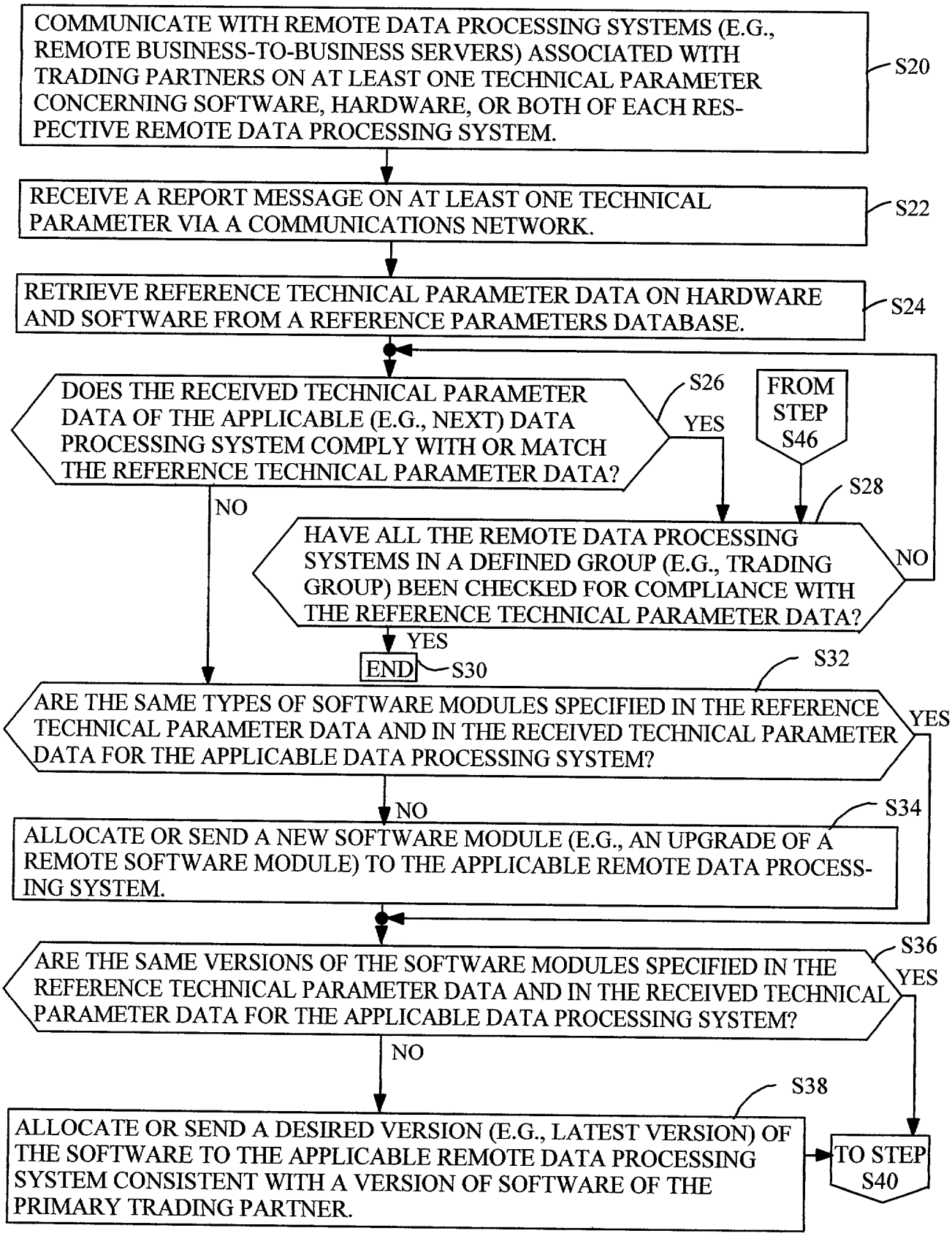
COMMUNICATE WITH REMOTE DATA PROCESSING SYSTEMS (E.G., REMOTE BUSINESS-TO-BUSINESS SERVERS) ASSOCIATED WITH TRADING PARTNERS ON AT LEAST ONE TECHNICAL PARAMETER CONCERNING SOFTWARE, HARDWARE, OR BOTH OF EACH RESPECTIVE REMOTE DATA PROCESSING SYSTEM.
S20
RECEIVE A REPORT MESSAGE ON AT LEAST ONE TECHNICAL PARAMETER VIA A COMMUNICATIONS NETWORK.
S22
RETRIEVE REFERENCE TECHNICAL PARAMETER DATA ON HARDWARE AND SOFTWARE FROM A REFERENCE PARAMETERS DATABASE.
S24
DOES THE RECEIVED TECHNICAL PARAMETER DATA OF THE APPLICABLE (E.G., NEXT) DATA PROCESSING SYSTEM COMPLY WITH OR MATCH THE REFERENCE TECHNICAL PARAMETER DATA?
S26
YES
NO
FROM STEP S46
S28
HAVE ALL THE REMOTE DATA PROCESSING SYSTEMS IN A DEFINED GROUP (E.G., TRADING GROUP) BEEN CHECKED FOR COMPLIANCE WITH THE REFERENCE TECHNICAL PARAMETER DATA?
NO
YES
END
S30
S32
ARE THE SAME TYPES OF SOFTWARE MODULES SPECIFIED IN THE REFERENCE TECHNICAL PARAMETER DATA AND IN THE RECEIVED TECHNICAL PARAMETER DATA FOR THE APPLICABLE DATA PROCESSING SYSTEM?
YES
NO
S34
ALLOCATE OR SEND A NEW SOFTWARE MODULE (E.G., AN UPGRADE OF A REMOTE SOFTWARE MODULE) TO THE APPLICABLE REMOTE DATA PROCESSING SYSTEM.
S36
ARE THE SAME VERSIONS OF THE SOFTWARE MODULES SPECIFIED IN THE REFERENCE TECHNICAL PARAMETER DATA AND IN THE RECEIVED TECHNICAL PARAMETER DATA FOR THE APPLICABLE DATA PROCESSING SYSTEM?
YES
NO
S38
ALLOCATE OR SEND A DESIRED VERSION (E.G., LATEST VERSION) OF THE SOFTWARE TO THE APPLICABLE REMOTE DATA PROCESSING SYSTEM CONSISTENT WITH A VERSION OF SOFTWARE OF THE PRIMARY TRADING PARTNER.
TO STEP S40

FIG. 11

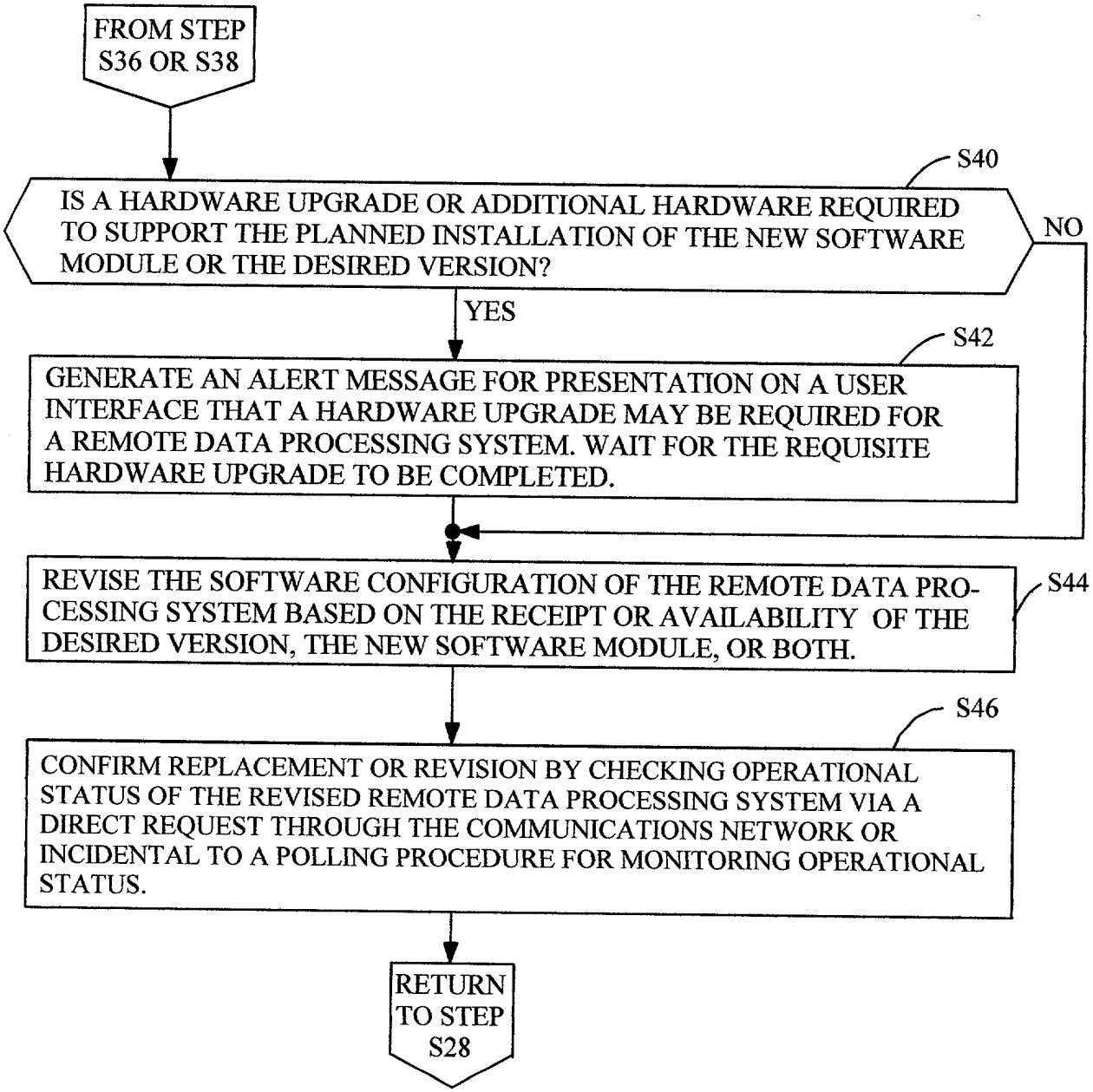
FROM STEP S36 OR S38
S40
IS A HARDWARE UPGRADE OR ADDITIONAL HARDWARE REQUIRED TO SUPPORT THE PLANNED INSTALLATION OF THE NEW SOFTWARE MODULE OR THE DESIRED VERSION?
NO
YES
S42
GENERATE AN ALERT MESSAGE FOR PRESENTATION ON A USER INTERFACE THAT A HARDWARE UPGRADE MAY BE REQUIRED FOR A REMOTE DATA PROCESSING SYSTEM. WAIT FOR THE REQUISITE HARDWARE UPGRADE TO BE COMPLETED.
REVISE THE SOFTWARE CONFIGURATION OF THE REMOTE DATA PROCESSING SYSTEM BASED ON THE RECEIPT OR AVAILABILITY OF THE DESIRED VERSION, THE NEW SOFTWARE MODULE, OR BOTH.
S44
S46
CONFIRM REPLACEMENT OR REVISION BY CHECKING OPERATIONAL STATUS OF THE REVISED REMOTE DATA PROCESSING SYSTEM VIA A DIRECT REQUEST THROUGH THE COMMUNICATIONS NETWORK OR INCIDENTAL TO A POLLING PROCEDURE FOR MONITORING OPERATIONAL STATUS.
RETURN TO STEP S28

FIG. 12

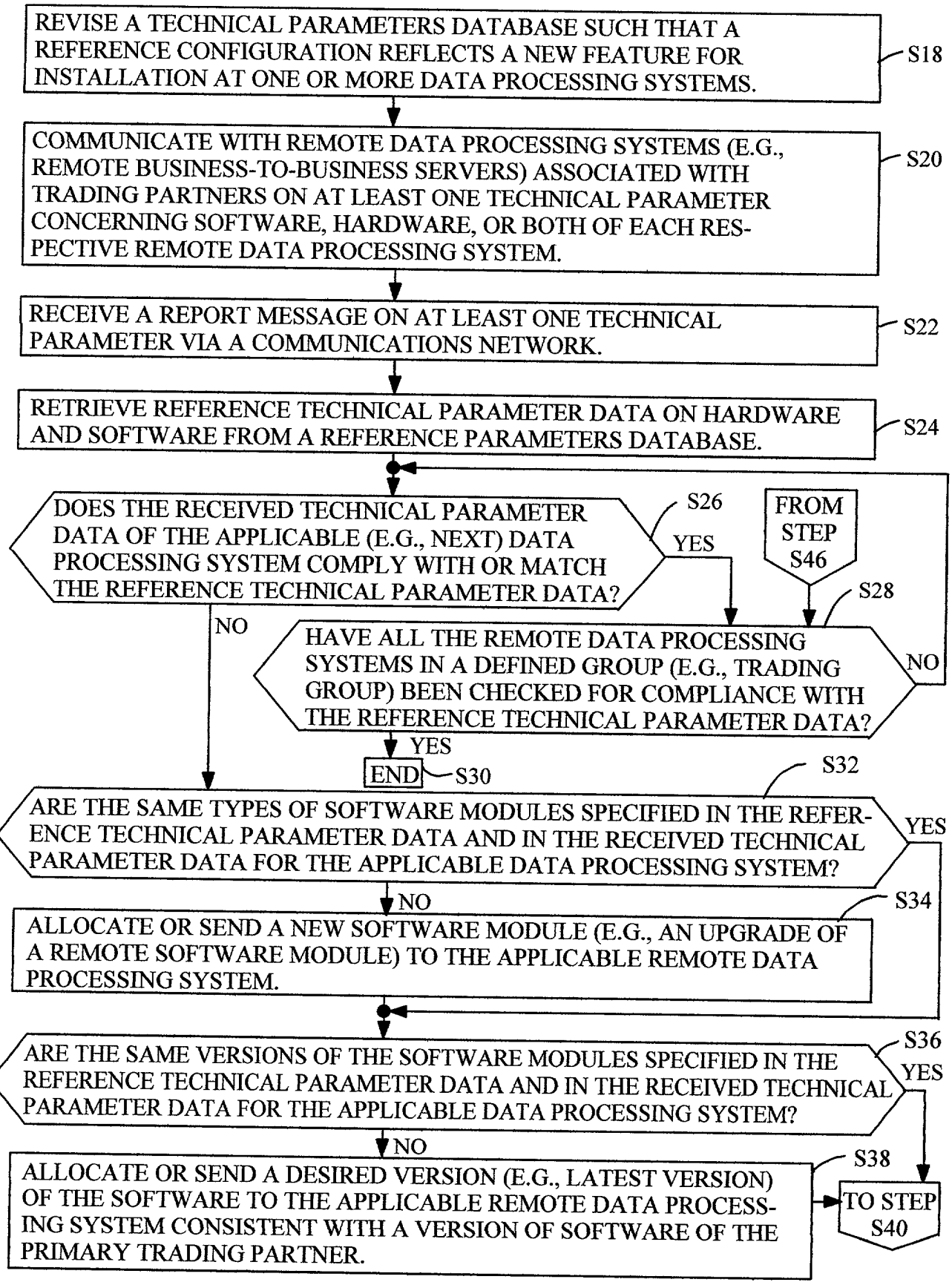
REVISE A TECHNICAL PARAMETERS DATABASE SUCH THAT A REFERENCE CONFIGURATION REFLECTS A NEW FEATURE FOR INSTALLATION AT ONE OR MORE DATA PROCESSING SYSTEMS.
S18
COMMUNICATE WITH REMOTE DATA PROCESSING SYSTEMS (E.G., REMOTE BUSINESS-TO-BUSINESS SERVERS) ASSOCIATED WITH TRADING PARTNERS ON AT LEAST ONE TECHNICAL PARAMETER CONCERNING SOFTWARE, HARDWARE, OR BOTH OF EACH RESPECTIVE REMOTE DATA PROCESSING SYSTEM.
S20
RECEIVE A REPORT MESSAGE ON AT LEAST ONE TECHNICAL PARAMETER VIA A COMMUNICATIONS NETWORK.
S22
RETRIEVE REFERENCE TECHNICAL PARAMETER DATA ON HARDWARE AND SOFTWARE FROM A REFERENCE PARAMETERS DATABASE.
S24
DOES THE RECEIVED TECHNICAL PARAMETER DATA OF THE APPLICABLE (E.G., NEXT) DATA PROCESSING SYSTEM COMPLY WITH OR MATCH THE REFERENCE TECHNICAL PARAMETER DATA?
S26
YES
NO
FROM STEP S46
S28
HAVE ALL THE REMOTE DATA PROCESSING SYSTEMS IN A DEFINED GROUP (E.G., TRADING GROUP) BEEN CHECKED FOR COMPLIANCE WITH THE REFERENCE TECHNICAL PARAMETER DATA?
NO
YES
END
S30
S32
ARE THE SAME TYPES OF SOFTWARE MODULES SPECIFIED IN THE REFERENCE TECHNICAL PARAMETER DATA AND IN THE RECEIVED TECHNICAL PARAMETER DATA FOR THE APPLICABLE DATA PROCESSING SYSTEM?
YES
NO
S34
ALLOCATE OR SEND A NEW SOFTWARE MODULE (E.G., AN UPGRADE OF A REMOTE SOFTWARE MODULE) TO THE APPLICABLE REMOTE DATA PROCESSING SYSTEM.
S36
ARE THE SAME VERSIONS OF THE SOFTWARE MODULES SPECIFIED IN THE REFERENCE TECHNICAL PARAMETER DATA AND IN THE RECEIVED TECHNICAL PARAMETER DATA FOR THE APPLICABLE DATA PROCESSING SYSTEM?
YES
NO
S38
ALLOCATE OR SEND A DESIRED VERSION (E.G., LATEST VERSION) OF THE SOFTWARE TO THE APPLICABLE REMOTE DATA PROCESSING SYSTEM CONSISTENT WITH A VERSION OF SOFTWARE OF THE PRIMARY TRADING PARTNER.
TO STEP S40

FIG. 13

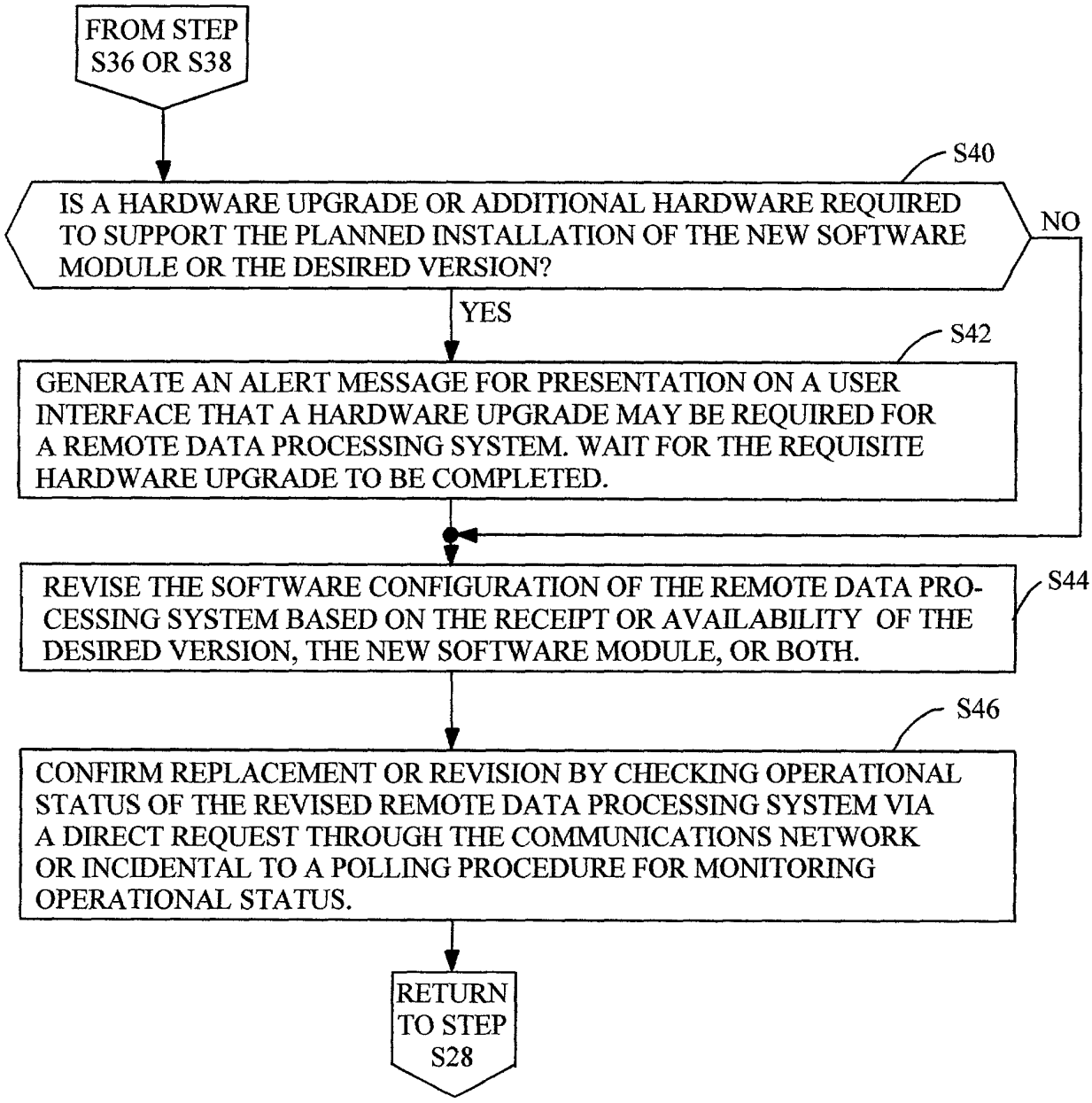
FROM STEP S36 OR S38
S40
IS A HARDWARE UPGRADE OR ADDITIONAL HARDWARE REQUIRED TO SUPPORT THE PLANNED INSTALLATION OF THE NEW SOFTWARE MODULE OR THE DESIRED VERSION?
NO
YES
S42
GENERATE AN ALERT MESSAGE FOR PRESENTATION ON A USER INTERFACE THAT A HARDWARE UPGRADE MAY BE REQUIRED FOR A REMOTE DATA PROCESSING SYSTEM. WAIT FOR THE REQUISITE HARDWARE UPGRADE TO BE COMPLETED.
REVISE THE SOFTWARE CONFIGURATION OF THE REMOTE DATA PROCESSING SYSTEM BASED ON THE RECEIPT OR AVAILABILITY OF THE DESIRED VERSION, THE NEW SOFTWARE MODULE, OR BOTH.
S44
S46
CONFIRM REPLACEMENT OR REVISION BY CHECKING OPERATIONAL STATUS OF THE REVISED REMOTE DATA PROCESSING SYSTEM VIA A DIRECT REQUEST THROUGH THE COMMUNICATIONS NETWORK OR INCIDENTAL TO A POLLING PROCEDURE FOR MONITORING OPERATIONAL STATUS.
RETURN TO STEP S28

FIG. 14

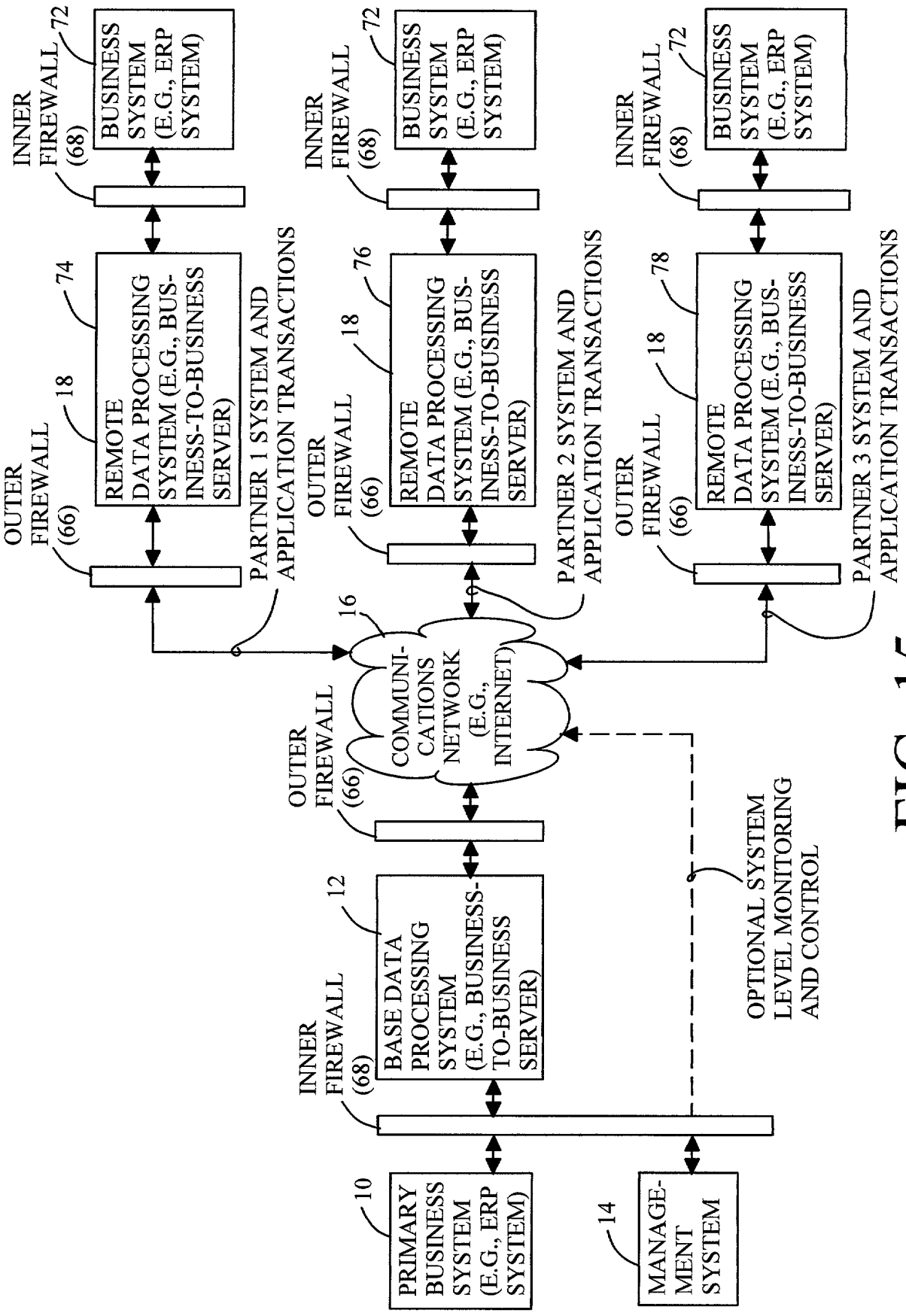
PRIMARY BUSINESS SYSTEM (E.G., ERP SYSTEM)
10
MANAGE-MENT SYSTEM
14
INNER FIREWALL (68)
BASE DATA PROCESSING SYSTEM (E.G., BUSINESS-TO-BUSINESS SERVER)
12
OUTER FIREWALL (66)
COMMUNI-CATIONS NETWORK (E.G., INTERNET)
16
OPTIONAL SYSTEM LEVEL MONITORING AND CONTROL
OUTER FIREWALL (66)
REMOTE DATA PROCESSING SYSTEM (E.G., BUS-INESS-TO-BUSINESS SERVER)
18
74
INNER FIREWALL (68)
BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
PARTNER 1 SYSTEM AND APPLICATION TRANSACTIONS
OUTER FIREWALL (66)
REMOTE DATA PROCESSING SYSTEM (E.G., BUS-INESS-TO-BUSINESS SERVER)
18
76
INNER FIREWALL (68)
BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
PARTNER 2 SYSTEM AND APPLICATION TRANSACTIONS
OUTER FIREWALL (66)
REMOTE DATA PROCESSING SYSTEM (E.G., BUS-INESS-TO-BUSINESS SERVER)
18
78
INNER FIREWALL (68)
BUSINESS SYSTEM (E.G., ERP SYSTEM)
72
PARTNER 3 SYSTEM AND APPLICATION TRANSACTIONS

FIG. 15